Brandon Lin
Software Engineer

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⌂ *http://brandonlin.com*

Education

University of Pennsylvania

May 2020

M.S.E. Data Science

B.A.S. Computer Science

GPA: 3.99

Relevant Coursework:

Compilers & Interpreters

Software Foundations

Operating Systems

Advanced Programming (Haskell)

Randomized Algorithms

Advanced Deep Learning

Minors: Statistics & Mathematics

Senior Thesis: *Differentially Private Computation in Graphical and Networked Domains*

Skills

Programming Languages

Rust, C++, Python, Bash

Frameworks

CUDA, PyTorch, LaTeX

Interests

Speedcubing, Music, Mathematics

Awards/Achievements

4-time Guinness World Record Holder

for Square-1 Average (Rubik's Cube)

William Lowell Putnam Competition

Top 250 Finisher

YouTube Creator

9 years with 4000+ subscribers

Other Experience

Philadelphia Classic

Co-head Organizer (2018 - 2019)

World Cube Association

Competition Organizer (2011 - 2019)

Professional Experience

Meta, *Software Engineer*, New York, NY

July 2020 - present
- Develop and unify ecosystem for rich data pipeline analysis and authoring through performant C++ SQL compiler, implementing privacy-aware type systems and transformability framework for multiple SQL dialects
- Developed CUDA kernels for new ML feature preprocessing framework, prototype for CUDA-based TorchArrow
- Drive org-wide adoption of PyTorch in large-scale ML models through distributed feature preprocessing frameworks and `torch.fx`

Facebook, *Software Engineering Intern*, Menlo Park, CA

May 2019 - August 2019
- Develop and design system and UI to monitor ML feature and model lifecycles and their relationships with datasets, feature importances, and feature transformations, used by Ads Ranking and Instagram ML teams
- Created functionality for Facebook's feature compiler to reference user package files in feature transform pipeline generation
- Designed Hack and Python API for computing global feature importances across Facebook's ML ecosystem to allow ML practitioners to understand the impact of their models' features

University of Pennsylvania, *Teaching Assistant*, Philadelphia, PA

May 2018 - May 2020
- Teaching assistant for a variety of university classes, assisting with homework vetting, grading, teaching weekly recitations and holding office hours
- TA'd in Deep Learning, Introduction to Algorithms, Machine Learning, and Mathematical Foundations of Computer Science

Facebook, *Software Engineering Intern*, Menlo Park, CA

May 2018 - August 2018
- Provided foundation for Dynamic Ads experiment to analyze the impact of template video ads
- Developed bot that collects team member standups for accessible project transparency

Projects & Research Experience

RetroGame | https://github.com/esqu1/retro-game

May 2020
- A **NES emulator** written in **Rust**, featuring full graphical support and 6502 CPU ISA emulation

TorchLint | https://github.com/esqu1/torchlint

November 2019 - December 2019
- A **static analyzer** for PyTorch written in **Haskell** to detect device and dimension mismatches
- Employed advanced functional programming techniques such as applicative functors and state monad transformers to develop parser and linter for PyTorch's intermediate representation

PennOS

October 2019 - December 2019
- **Unix-like operating system** featuring a multithreaded priority scheduler, user-shell interactivity, job control, FAT-style file system, defragmentation utility, and hierarchical directory structure
- Winner of the best operating system in UPenn's undergraduate OS class (CIS 380 Fall 2019)